We Claim:

1.   A transparent data path architecture for an optical-electrical-optical (OEO) switch comprising:

means to recover a data rate from an incoming·serial signal;

means to monitor signal quality of the incoming signal; and

means to provide data integrity across the transparent switching fabric.

2.   The transparent data path architecture as defined in claim 1 wherein said architecture is independent of input data rate.

3.   The transparent data path architecture as defined in claim 2 having means to switch an incoming signal independent of data protocol.

4.   The transparent data path architecture as defined in claim 3 wherein said means to recover a data rate from an incoming signal is capable of recovering a data rate from a wide range of data rates.

5.   The transparent data path architecture as defined in claim 1 having means to switch a signal across said switch without modifying the data signal by adding data bits.

6.   The transparent data path architecture as defined in claim 1 having means to switch a signal across said switch without modifying the data signal by changing data bits.

7.   The transparent data path architecture as defined in claim 1 having means to switch a signal across said switch without modifying the data signal by deleting data bits.

8.   The transparent data path architecture as defined in claim 1 having means to extract layer-1 performance data from the incoming signal in a non-intrusive manner.

9.   The transparent data path architecture as defined in claim 1 having means to extract layer-1 and layer-2 performance data from the incoming signal in a non-intrusive manner.

10. The transparent data path architecture as defined in claim 1 having an active switching fabric plane and a back-up switching fabric plane.

11. The transparent data path architecture as defined in claim 10 wherein data integrity is monitored across the active switching fabric plane and the back-up switching fabric plane.

12. The transparent data path architecture as defined in claim 11 having means to select between said active switching plane and said back-up switching plane based on quality of data integrity between said switching fabric planes.

13. The transparent data architecture as defined in claim 1 having means to provide line loopback of a signal having undergone re-shaping, re-amplification and re-shaping in a clock data recovery unit.

14. The transparent data architecture as defined in claim 1 having means to provide loopback functionality wherein a signal is looped back through either the active switching fabric plane or the back-up switching fabric plane.

15. A method of providing data integrity of serial data signal through a transparent data path architecture of an optical-electrical-optical (OEO) switch, the method comprising:

    providing means to recover a data rate from said incoming serial data signal;

    providing means to switch a signal across a switching fabric, the switching fabric including an active fabric and a back-up fabric;

    monitoring signal quality of the signal across respective switching fabrics; and

    selecting the signal across respective switching fabrics having a higher signal quality.

16. The method as defined in claim 15 wherein said transparent architecture is independent of data rate and data protocol.

17. A data rate and protocol independent data path architecture for an optical-electrical-optical (OEO) switch comprising:

means to recover a range of signal data rates from an incoming serial signal;

means to switch any signal, independent of data protocol;

means to switch any signal across the switch without modifying the data signals;

means to monitor signal quality of the incoming signal, independent of data rate or protocol;

means to extract layer 1 and 2 performance data from the signal in a non-intrusive manner; and

means to provide data integrity across the transparent switching fabric.